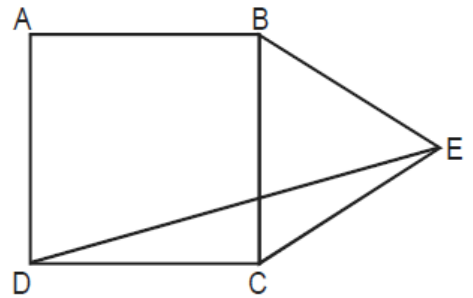1. If ABCD is a square and BCE is an equilateral triangle, what is the measure of angle∠DEC?
a. 15°   b. 30°   c. 20°   d. 45°

2. Instead of a metre scale, a cloth merchant uses a 120 cm scale while buying, but uses an 80 cm scale while selling the same cloth. What is his overall profit percentage?
a. 50%   b. 25%   c. 40%   d. 15%

3. From a circular sheet of paper with a radius 20 cm, four circles of radius 5 cm each are cut out. What is the ratio of the uncut to the cut portion?
a. 1 : 3   b. 4 : 1   c. 3 : 1   d. 4 : 3

4. The cost of diamond varies directly as the square of its weight. Once, this diamond broke into four pieces with weights in the ratio 1 : 2 : 3 : 4. When the pieces were sold, the merchant got Rs. 70,000 less. Find the original price of the diamond.
a. Rs. 1.4 lakh   b. Rs. 2 lakh
c. Rs. 1 lakh   d. Rs. 2.1 lakh

5. The question is followed by two statements, I and II. Mark the answer as.
a. if the question can be answered with the help of statement I alone.
b. if the question can be answered with the help of statement II, alone.
c. if both statement I and statement II are needed to answer the question.
d. if the question cannot be answered even with the help of both the statements.

If x, y and z are real numbers, is z – x even or odd?
I. xyz is odd.
II. xy + yz + zx is even.

Answer the questions based on following data.
The pages of a book are numbered 0, 1, 2 … upto M, M>0. There are four categories of instructions that direct a person in positioning the book at a page. The instruction types and their meanings are :
1. NEW : Position the book at page No. 1
2. END : Position the book at page No. 0
3. ONWARD, n :From the current page move forward by n pages; if, in this process, page number M is reached, stop at M.
4. REGRESS, n : From the current page, move backward by n pages; if in this process, page number 0 is reached, stop at page number 0.
In each of the following questions, you will find a sequence of instructions formed from the above categories. In each case, let n1 be the page number before the instructions are executed and n2 be the page number at which the book is positioned after the instructions are executed.

6. ONWARD, 25 ; REGRESS, 10. which of the following statements is true?
(a) n1=n2 if M=10 and n1=0
(b) M=20 provided n1>0
(c) n1>30 provided M=900
(d) n1=37 provided M=25

7. REGRESS, 5; ONWARD, 5. Which of the following statements is true about the above set of instructions?
(a) n1=n2 provided n1 ≥ 5

(b) n1=n2 provided n1>0
(c) n2=5 provided M>0
(d) n1>n2 provided M>0

8.   ONWARD, 10; ONWARD, 10. Which of the following statements about the above instructions is true?
(a) n2-n1=20 only if n1=0
(b) n2-n1=20 if M>20 and n1=1
(c) n2-n1=10 if M=21 and n1=0
(d) n2>n1 if M>0

9.   ONWARD, 5; REGRESS, 4. Which of the following statements about the above instructions is true?
(a) n2=n1+4 Provided 1<n1<7
(b) n2=n1 provided M<6
(c) n2=n1+1 provided M-n1>5
(d) n2-n1< 0 provided M>0

10.   A circle is inscribed in a given square and another circle is circumscribed about the square. What is the ratio of the area of the inscribed circle to that of the circumscribed circle?
(a) 2 : 3
(b) 3 : 4
(c) 1 : 4
(d) 1 : 2

11.   If $y = f(x)$ and $f(x) = (1-x) / (1 + x)$, which of the following is true?
(a) $f(2x) = f(x) - 1$
(b) $x = f(2y)-1$
(c) $f(1/x) = f(x)$
(d) $x = f(y)$

Directions for questions: Answer the questions on the basis of the information given below.
The HR Manager of the IT company recently scanned employees training results of various exams into the central computer system. When their character reading software cannot read something, it leaves the space blank. The scanner output reads as follows:

Name	Java	C Language	Testing	Analysis	Project Management	GPA
Amanpreet		B	F			1.4
Bikas	D	D	F	F		
Chandra		D	A	F	F	2.4
Deepak	A	B		D	D	3.2
Fazal	D	F	B		D	2.4
Gowri	C	C	A		B	3.8
Hari		B	A		D	2.8
Ismet			B		A	
Jagdeep	A	A	B		C	3.8
Kunal	F		A	F	F	1.8
Leena	B	A		B	F	3.2
Manab			A	B	B	
Navdeep	A	D	B	A	F	3.6

Name						GPA
Osman	C		B	B	A	4.6
Preeti	F	D		D		3.2
Rahul	A	C	A		F	4.2
Sameer		C	F	B		
Tara	B					2.4
Utkarsh			F	C	A	3
Vipul	A		C	C	F	2.4

In the grading system, A, B, C, D, and F grades fetch 6, 4, 3, 2, and 0 grade points respectively. The Grade Point Average (GPA) is the arithmetic mean of the grade points obtained in the five subjects. For example Navdeep's GPA is (6 + 2 + 4 + 6 + 0) / 5 = 3.6. Some additional facts are also known about the students' grades. These are
(a) Vipul obtained the same grade in C Language as Amanpreet obtained in Java and Analysis.
(b) Fazal obtained the same grade in Analysis as Utkarsh did in C Language.
(c) Tara received the same grade in exactly three courses.

12. What grade did Preeti obtain in Testing?
(1) A   (2) B   (3) C   (4) D

13. In Project Management, Tara could have received the same grade as
(1) Ismet   (2) Hari   (3) Jagdeep   (4) Manab

14. In Analysis, Gowri's grade point was higher than that obtained by
(1) Fazal   (2) Hari   (3) Navdeep   (4) Rahul

15. What grade did Utkarsh obtain in Java?
(1) B   (2) C   (3) D   (4) F

Answer the questions based on following data.
A dealer deals only in colour TVs and VCRs. He wants to spend up to Rs.12 lakhs to buy 100 pieces. He can purchase a colour TV at Rs.10,000 and a VCR at Rs.15,000. He can sell a colour TV at Rs.12,000 and a VCR at Rs.17,500. His objective is to maximize profits. Assume that he can sell all the items that he stocks.

16. For the maximum profit, the number of colour TVs and VCRs that he should respectively stock are
(a) 80, 20
(b) 20, 80
(c) 60, 40
(d) None of these

17. If the dealer would have managed to get an additional space to stock 20 more items, then for maximizing profit, the ratio of number of VCRs and number of TVs that he should stock is
(a) 7 : 3
(b) 0
(c) 1 : 2
(d) None of these

18. The maximum profit, in rupees lakh, the dealer can earn from his original stock if he can sell a colour TV at Rs. 12200 and VCR at Rs.18300 is
(a) 2.64
(b) 2.49
(c) 2.72
(d) 2.87

Directions for questions: Answer the questions on the basis of the information given below.
The data points in the figure below represent monthly income and expenditure data of individual members following families. For these questions, savings is defined as
Savings = Income − Expenditure
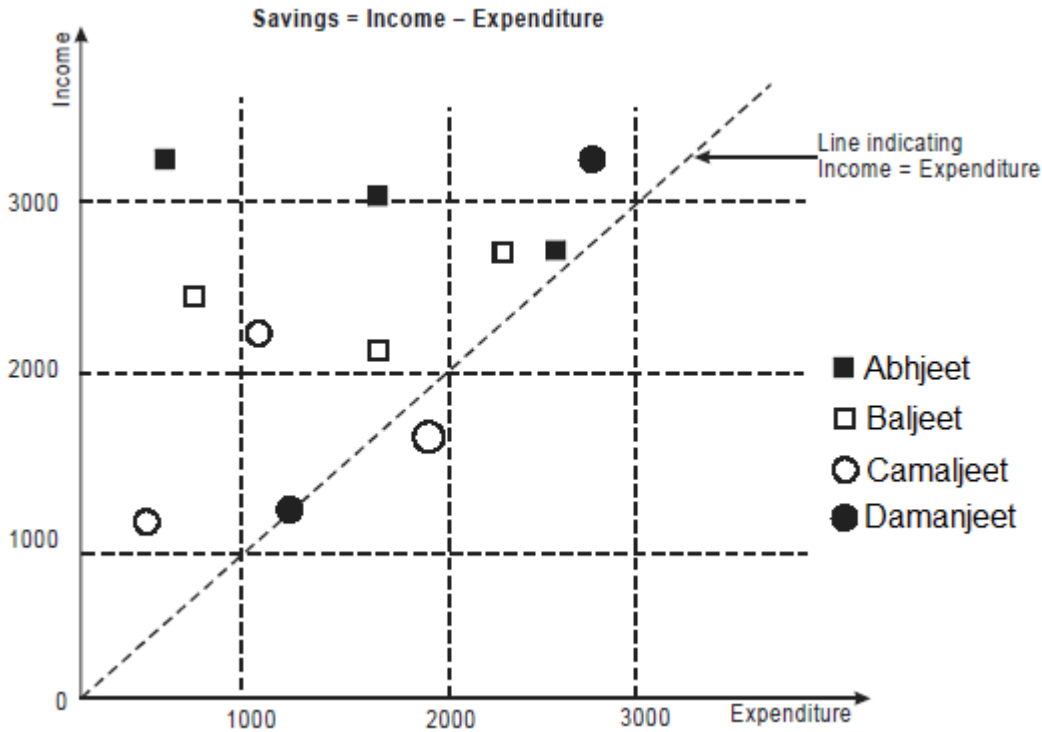
19. Which family has the lowest average income?
(1) Abhijeet   (2) Baljeet   (3) Camaljeet   (4) Damanjeet

20. Which family has the highest average expenditure?
(1) Abhijeet   (2) Baljeet   (3) Camaljeet   (4) Damanjeet

21. Which family has the lowest average savings?
(1) Abhijeet   (2) Baljeet   (3) Camaljeet   (4) Damanjeet

22. The highest amount of savings accrues to a member of which family?
(1) Abhijeet   (2) Baljeet   (3) Camaljeet   (4) Damanjeet

23. In a Tennis Open tournament 71 persons have signed up for elimination rounds. All players are to be paired up for the first round, but because 71 is an odd number one player gets a bye, which promotes him to the second round, without actually playing in the first round. The pairing continues on the next round, with a bye to any player left over. If the schedule is planned so that a minimum number of matches are required to determine the champion, the number of matches which must be played is
(a) 71
(b) 70
(c) 69
(d) 36

24. There are ten 50 paise coins placed on a table. Six of these show tails four show heads. A coin is chosen at random and flipped over (not tossed). This operation is performed seven times. One of the coins is then covered. Of the remaining nine coins, five show tails and four show heads. The covered coin shows
(a) a head

(b) a tail
(c) more likely a head
(d) more likely a tail

25. From each of the two given numbers, half the smaller number is subtracted. Of the resulting numbers the larger one is three times as large as the smaller. What is the ratio of the two numbers?
(a) 2 : 1
(b) 3 : 1
(c) 3 : 2
(d) None

26. Three identical cones with base radius r are placed on their bases so that each is touching the other two. The radius of the circle drawn through their vertices is
(a) smaller than r.
(b) equal to r.
(c) larger than r.
(d) depends on the height of the cones.

27. The line AB is 6 metres in length and is tangent to the inner one of the two concentric circles at point C. It is known that the radii of the two circles are integers. The radius of the outer circle is
(a) 5 metres
(b) 4 metres
(c) 6 metres
(d) 3 metres
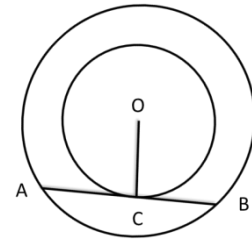
Directions for Questions: Answer the following questions based on the information given below:
The following table shows the break-up of actual costs incurred by a company in last five years (year 2012 to year 2016) to produce a particular product:

	Year 2012	Year 2013	Year 2014	Year 2015	Year 2016
Volume of production and sale (units)	1000	900	1100	1200	1200
Costs (Rs.)					
Input Material	50,000	45,100	55,200	59,900	60,000
Manpower	20,000	18,000	22,100	24,150	24,000
Variables	2,000	2,200	1,800	1,600	1,400
Rent	1,000	1,000	1,100	1,100	1,200
Taxes	400	400	400	400	400
Maintenance	800	820	780	790	800
Operational Cost	30,000	27,000	33,500	36,020	36,000
Marketing	5,750	5,800	5,800	5,750	5,800

The production capacity of the company is 2000 units. The selling price for the year 2016 was Rs. 125 per unit. Some costs change almost in direct proportion to the change in volume of production, while others do not follow any obvious pattern of change with respect to the volume of production and hence are considered fixed. Using the information provided for the year 2016 as the basis for projecting the figures for the year 2017, answer the following questions:

28. What is the approximate cost per unit in rupees, if the company produces and sells 1400 units in the year 2017?
(1) 104   (2) 107   (3) 110   (4) 115

29. What is the minimum number of units that the company needs to produce and sell to avoid any loss?
(1) 313   (2) 350   (3) 384   (4) 747

30. If the company reduces the price by 5%, it can produce and sell as many units as it desires. How many units the company should produce to maximize its profit?
(1) 1400   (2) 1600   (3) 1800   (4) 2000

31. Given that the company cannot sell more than 1700 units, and it will have to reduce the price by Rs.5 for all units, if it wants to sell more than 1400 units, what is the maximum profit, in rupees, that the company can earn?
(1) 25,400   (2) 24,400   (3) 31,400   (4) 32,900

Use the following information for next two questions:
A function f(x) is said to be even if f(-x)=f(x), and odd if f(-x) = -f(x). Thus, for example, the function given by $f(x) = x^2$ is even, while the function given by $f(x) = x^3$ is odd. Using this definition, answer the following questions.

32. The function given by $f(x) = |x|^3$
(a) even
(b) odd
(c) neither
(d) both

33. The sum of two odd functions
(a) is always an even function
(b) is always an odd function
(c) is sometimes odd and sometimes even
(d) may be neither odd nor even

34. A five digit number is formed using digits 1, 3, 5, 7 and 9 without repeating any one of them. What is the sum of all such possible numbers?
(a) 6666600
(b) 6666660
(c) 6666666
(d) None

35. A box contains 6 red balls, 7 green balls and 5 blue balls. Each ball is of a different size. The probability that the red ball selected is the smallest red ball, is
(a) 1/18
(b) 1/3
(c) 1/6
(d) 2/3

36. ABC forms an equilateral triangle in which B is 2 km from A. A person starts walking from B in a direction parallel to AC and stops when he reaches a point D directly east of C. He, then, reverses direction and walks till he reaches a point E directly south of C. Then D is
(a) 3 km east and 1 km north of A
(b) 3 km east and 3 km north of A
(c) 3 km east and 1 km south of A
(d) 3 km west and 3 km north of A

37. A lead cuboid of 8 inches in length, 11 inches in breadth, and 2 inches thick was melted and resolidified into the form of a rod of 8 inches diameter. The length of such a rod, in inches, is nearest to
(a) 3
(b) 3.5
(c) 4

(d) 4.5

Directions for Questions: Answer the following questions based on the information from an airline about their passengers (pax) in particular sectors is given below:
The proportion of males and the proportion of vegetarian pax are given below. The airline has a total of 800 passengers, 80% of whom are in the Mumbai - Delhi sector and rest are equally divided between Mumbai - Hyderabad and Mumbai - Bangalore.

Sector	Male (M)	Vegetarian (V)
Mumbai - Bangalore	0.6	
Mumbai - Hyderabad	0.55	0.5
Mumbai - Delhi sector		0.55
Total	0.475	0.53

38. What is the percentage of male pax in the Mumbai - Delhi sector?
(1) 40   (2) 45   (3) 50   (4) 60

39. In Mumbai - Bangalore, twenty five per cent of the vegetarians are male. What is the difference between the number of female vegetarians and male non-vegetarians?
(1) less than 8   (2) 10   (3) 12   (4) 16

40. What is the percentage of vegetarian pax in Mumbai - Bangalore?
(1) 40   (2) 45   (3) 50   (4) 60

41. In the Mumbai - Delhi sector, 50% of the pax are vegetarian males. Which of the following statements is correct?
(1) Except vegetarian males, all other groups have same number of pax.
(2) Except non-vegetarian males, all other groups have same number of pax.
(3) Except vegetarian females, all other groups have same number of pax.
(4) None of these.

Use the following information:
Eighty five people went to a lottery shop where they could bet on the DhanLaksmi, Rajshri, and Gauri lotteries. It was known that 20 of them took all three ets, and 55 of them took at least two of the three bets. Each bet cost Re. 1, and the total receipt of the lottery shop was Rs. 145.

42. How many people did not try any of the bets?
(a) 5
(b) 10
(c) 15
(d) 20

43. How many people took exactly one bet?
(a) 5
(b) 10
(c) 15
(d) 20

44. John bought five toffees and ten chocolates together for forty rupees. Subsequently, he returned one toffee and got two chocolates in exchange. The price of an chocolate would be
(a) 1
(b) 2
(c) 3
(d) 4

45. Let $a_{n+1} = 2 a_n + 1$ (n = 0,1,2,....) and $a_0 = 0$. Then u_{10} nearest to

(a) 1023
(b) 2047
(c) 4095
(d) 8195

46. Suppose you have a currency, named Rubble, in three denominations: 1 Rubble, 10 Rubbles and 50 Rubbles. In how many ways can you pay a bill of 95 Rubbles?
(1) 15　　　　　(2) 16　　　　　(3) 18　　　　　(4) 19

47. Consider four-digit numbers for which the first two digits are equal and the last two digits are also equal. How many such numbers are perfect squares?
(1) 3　　　　　(2) 2　　　　　(3) 4　　　　　(4) 1

48. The price of Coffee (in rupees per kilogram) is $100 + 0.10n$, on the nth day of 2007 $(n = 1, 2, ..., 100)$, and then remains constant. On the other hand, the price of Ooty tea (in rupees per kilogram) is $89 + 0.15n$, on the nth day of 2007 $(n = 1, 2, ..., 365)$. On which date in 2007 will the prices of coffee and tea be equal?
(1) May 21　　　(2) April 11　　　(3) May 20　　　(4) April 10

49. Two circles with centres P and Q cut each other at two distinct points A and B. The circles have the same radii and neither P nor Q falls within the intersection of the circles. What is the smallest range that includes all possible values of the angle AQP in degrees?
(1) Between 0 and 90　　(2) Between 0 and 30　　(3) Between 0 and 60　　(4) Between 0 and 75

50. A quadratic function $f(x)$ attains a maximum of 3 at x = 1. The value of the function at x = 0 is 1. What is the value $f(x)$ at x = 10?
(1) –119　　　　(2) –159　　　　(3) –110　　　　(4) –180

1.   a   Triange BCE is an equilateral triangle, and ABCD is a square, BC = CD. Hence, CD = CE. So in Triange CDE, we have CD = CE. Hence, $\angle EDC = \angle CED$. Now$\angle BCE = 60°$ (since equilateral triangle) and$\angle BCD = 90°$ (since square). Hence,$\angle DCE = \angle DCB + \angle BCE = (60 + 90) = 150°$.So in $\triangle DCE$, $\angle EDC + \angle CED = 30°$ (since three angles of a triangle add up to 180°). Hence, we have$\angle DEC = \angle EDC = 15°$.

2.   a   Lets say if Shopkeeper buys 120m and pays only 100m Same while selling he sells 80m instead of 100 m. So using Cetking 1.2/0.8 shortcut for faulty gain… Gain = error margin / Paid quantity. Ie Gain = 40/80 = 50% ot 1.5times. So profit is 50%.

3.   C the ratio of small circle to bigger circle is 1:4 . Using Cetking Similar Circles shortcuts
Therefore the ratio of area of small circle to big circle is 1:16.
Total 4 small circles are (cut area) to big circles area (uncut) ratio is 4:16 = 1:4
Therefore the uncut to cut will be 3:1

4.   Let the original weight of the diamond be 10. Hence, its original price will be 100
The weights of the pieces after breaking are x, 2x, 3x and 4x. ie 1:2:3:4
Therefore, their prices will be (1 + 4 + 9 + 16) = 30. Using Cetking Arithmetic shortcuts
Hence, the difference in the price of the original diamond and its pieces = 70 and its value is 70000.
Hence, the original price (100) will be 100,000/-

5.   Statement I - xyz is odd, Means that all three of them are odd. Hence, z − x is even.
Statement II - xy + yz + zx is even,
So only statement I is required to answer the question.

6.   a ONWARD 25, REGRESS 10 would effectively mean a ONWARD 15 i.e. n2-n1 = 15, (if M − n1> 25) and n2 = M − 10 (if M − n1 < 25). The only option that satisfies this is option (a). So if M = 10 and n1 = 0., then M − n1 < 25 and so n2 = 10 − 10 = 0. Hence, n1=n2

7.   a REGRESS, 5; ONWARD, 5 would effectively mean n1 = n2 (in case n1 ≥ 5) or n2 = 5 (in case n1<5). The only option that satisfies this is (a).

8.   b ONWARD, 10 ; ONWARD, 10 would effectively mean a ONWARD 20 i.e. n2-n1 = 20, (if M − n1 ≥ 20) .or n2 = M (if M − n1 < 20). The option that satisfies this condition is (b), as if M>20 and n1=1, then M − n1 > 20, and hence n2-n1 = 20.

9.   c ONWARD, 5; REGRESS, 4, would effectively mean a ONWARD 1 i.e. n2-n1 = 1 (if M − n1 ≥ 5) or n2 = M − 4 (if M − n1< 5). The option that satisfies this condition is (c).

10.   Let C1 be inscribed circle, S be the square with side a and C2 be the circumscribed circle.
the diameter of the C1 = Side of the square S ie a.
diameter of the C2 = Diagonal of the S ie √2a
Ratio of diameter of C1 : C2 = a : √2a = 1: √2
Using cetking similar circle shortcuts
Area C1 : Area C2 = Square of diameter of C1 : C2 = Squre of 1: √2 = 1:2

11.   Use Cetking dirty quant shortcut to solve this question.
Let x = 2. Hence f(2) = (1 − 2)/(1 + 2) = -1/3 = y.
Using Elimination method only option (d) satisfies the condition.
f(y) = (-1/3) = (1 + 1/3)/(1 − 1/3) = 2 = x.

12.   1 GPA of Preeti = 3.2
i.e. F + D + X + D + Y / 5 = 3.2
0 + 2 + x + 2 + y = 16
x + y = 12
So only combination possible is A, A.
So Preeti obtained A grade in testing.

13.   4 Tara received same grade in 3 courses. We already
know that Tara has got B grade in one of the subject
and GPA is 2.4. So in 3 courses in which he scored
same grade is B.
So Tara has received the same grade as Manab.

14.   2 GPA of Gowri is 3.8
i.e. $3 + 3 + 6 + x + 4 = 3.8 \times 5$
$16 + x = 18$
$x = 2$
So in Analysis, Gowri's grade is C.
Rahul's grade in Analysis $= (4.2 \times 5) - 15 = 6$, i.e., A.
Fazal's grade in Analysis $= (2.4 \times 5) - 8 = 4$, i.e., B.
Hence, Gowri's grade will be higher than that of Hari.

15.   3 As Fazal GPA $= 2.4$
So $D + F + B + P + D = 2.4 \times 5$
$2 + 0 + 4 + P + 2 = 12$
$P = 4$
So his grade in Analysis is B.
So Grade of Utkarsh in C Language is also B.
So for Utkarsh, $x + B + F + C + A = 3 \times 5$
$x + 4 + 0 + 3 + 6 = 15$
$x = 2$
So grade of Utkarsh in Java = D.

16.   We can use Mixtures shortcut method to solve these questions. average cost per piece $=$
$1200000/100 = Rs.12000$
10000   15000
    \   /
      12000
    /   \
  3000   2000 . hence he should stock 60TV and 40 VCRs.

17.   We can use Mixtures shortcut method to solve these questions. the average cost per piece
would now be $1200000/120 = Rs.10000$. (20 more items are stocked)
10000   15000
    \   /
      10000
    /   \
  5000   0 . hence the ratio VCR's and TV's is 0.

18.   We can use Mixtures shortcut method to solve these questions.
The stock should be 60 TV's and 40 VCR's for Max profit.
profit made per TC $= 12200 - 10000 = Rs.2200$
Profit made per VCR $= 18300 - 15000 = 3300$.
Therefore the total profit will be $(2200 \times 60) + (3300 \times 40) = 264000 = 2.64$ lakhs.

19.   3 Average income of Abhjeet $= (700 + 1700 + 1800) / 3 = 4200 / 3$
Average income of Baljeet $= (800 + 1600 + 2300) / 3 = 4700 / 3$
Average income of Camaljeet$= (300 + 1100 + 1900) / 3 = 3300 / 3$
Average income of Damanjeet $= (1200 + 2800) / 2 = 4000 / /2$
It's clear that lowest average income is of Camaljeet. (It is clear visually as well)

20.   4 From the figure draw a line parallel to the expenditure axis and midway between observations
of each family's values.

21.   4 From figure the Ist member of Damanjeet family is on the line indicating income = expenditure.
The 2nd member is just above the line.

22. 1 Look at the leftmost member of Abhjeet family.

23. 1 For every 20 players there will be 10 matches. So round 1 will have 70 players one getting bye. So 35 matches. Shortcut: Using Logical approach – for every match there will be one 1 person loosing out. So to get one winner total 70 people have to loose ie 70 matches.

Round 1	35
Round 2	18
Round 3	9
Round 4	5
Round 5	2
Round 6	1
Total	70

24. 1 after 7 rounds there are two cases: Number of Tails is 6 and number of Heads is 4. Number of Tails is 5 and number of Heads is 5. Now, when the operation is performed seven times i.e. odd number of times, the number of Tails and Heads could be (1, 9), (3, 7), (5, 5), (7, 3) and (9, 1). Thus, the only possible case is number of Tails is 5 and number of Heads is 5. Therefore the covered coin shows Head.

25. 1 for x < y, y – x/2 = 3(x – x/2). Therefore x/y = 2/1.

26. 3. 3 cones touching each other means placing 3 circles touching. Centers of the circle forms an equilateral triangle with each side = 2r. Circle that passes through the centers will be the circumcircle to such a triangle. Ie (2r/√3) ie (2r/√3) > r. (The radius of the circumcircle of an equilateral triangle is (1/√3) times its side.)
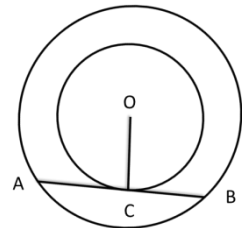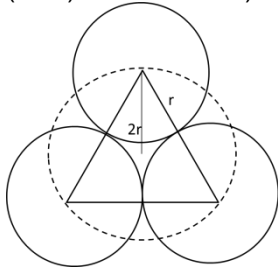
27. 1.AC = AB = 3 m (Perpendicular from the centre bisects). So if the radii of the inner and outer circles are r1 and r2 respectively, then since OCB is a right angled triangle, $r1^2 + 3^2 = r2^2$. Cetking Geometry shortcut – Triplets: If one side is 3 cm other two sides will be 4 and 5. as only triplet with 3 in it is 3-4-5. Hence r2 = 5.

Looking at the values in the table one can easily conclude that the costs which are directly proportional to the change in volume of proportion are 'Input Material', 'Manpower' and 'Operating cost of machines'. Rest of the costs are all fixed costs. If 'x' is the number of units produced in 2017 then the total cost of production would be
C = 9600 (Fixed cost) + 100x (Variable cost)
Variable cost = 100x because as the number of units for 2016 is 1200 and variable cost for that is 120000 i.e. 100 times the number of units.

28. 2 Total cost = 9600 + 100 × 1400 = 149600
Cost per unit = 149600 / 1400 = 107 approx

29. 3 To avoid any loss the total selling price should be equal to the total cost price. If 'x' units are produced and selling price of each unit is 125 Rs.
Therefore, 125x = 9600 + 100x
25x = 9600
⇒ x = 384

Hence, 384 units should be produced.

30. 4 profit would be maximum if the number of units are maximum i.e. 2000

31. 1 If the company sells a maximum of 1400 units, the selling price is fixed at Rs. 125 per unit. If more than 1400 units are sold, the selling price is reduced to Rs. 120 per unit. The company cannot sell more than 1700 units.
To earn maximum profit at a unit selling price of Rs. 125, the company must sell 1400 units. The maximum profit earned, denoted by P0, is calculated as below:
Profit = (Selling Price) – (Cost Price)
P0 = 125 × 1400 – (9600 + 100 × 1400) = Rs. 25400
Now if the company sells an x number of units
(x > 1400) then the profit earned will be:
Px = 120 × x – (9600 + 100 × x) = 20 × x – 9600
The minimum value of x for which Px will be more than
P0 must satisfy the following inequality:
20 × x – 9600 > 25400
⇒ x > 1750
As only a maximum of 1700 units can be sold, Px will never be more than P0. Hence the maximum profit that can be earned is Rs. 25400 only.
Hence (1) is correct.

Functions and Graphs.
This is the problem with functions and graphs. It's one of the easiest topics in CAT but students get scared of it and leave it. Following both questions were cake walk even if you have bare minimum knowledge of functions.

32. 1. $f(x) = |x|^3$ The function is even as $f(-x) = |-x|^3 = |x|^3 = f(x)$.

33. 2 sum of two odd functions
Let $f(x) = a(x) + b(x)$ where g and h are odd functions.
$f(-x) = a(-x) + b(-x) = -a(x) - b(x) = - \{a(x) + b(x)\} = -f(x)$. So $f(x)$ is odd.

34. 1 Fix one digit, then the remaining four digits can be arranged in 4! = 24 ways.
Sum of the digits will be 24(1+3+5+7+9) = 600
Sum of all such numbers at their positions will be 600(1 + 10 + 100 + 1000 + 10000) = 6666600

35. 3 Typical CAT question.. This question is very easy but tricky.
Question 1: The probability that the ball selected is the smallest red ball = 1/18
Question 2: The probability that the red ball selected is the smallest red ball = 1/6
Here we are talking about question 2 so answer is 1/6.

36. 2 Since triangle ABC is an equilateral triangle with side 2 km, its altitude will be 3 km. Hence D is 3 km. to the north of A.

37. 2 volume remains constant, we can say Volume cuboid = Volume cylinder
Ie $(8 \times 11 \times 2) = L \times \prod \times 4^2 => L = 3.5$ inches.

Sector	M	F	V	NV	Total
Mumbai - Bangalore	48	32	32	48	80
Mumbai - Hyderabad	44	36	40	40	80
Mumbai - Delhi sector	288	352	352	288	640
Total	380	420	424	376	800

38. 2. Percentage of male pax in the Mumbai - Delhi sector. = 288/640 x 100 = 45%

39. 4.
Male vegetarians = 8; Female vegetarians = 24; So, their difference is 16.

40. 1 Percentage of vegetarian pax in Mumbai - Bangalore = 32 / 80 x 100 = 40%

41. 4. According to the table none of the above is true.

Solution to next questions:
Since 20 of them took all three and 55 of them took at least two of the three bets, we can say that (55 – 20) = 35 of them took exactly two bets. Also the number of rides taken in all = 145. Now, we know that $x + y + z = T$ and $x + 2y + 3z = RT$, where
x = number of members belonging to exactly 1 set
y = number of members belonging to exactly 2 sets = 35
z = number of members belonging to exactly 3 sets = 20
T = Total number of members who belong to at least one of the 3 sets
RT = Repeated total of all the members = 145
Thus we have two equations and two unknowns. Solving this we get x = 15 and T = 70. Hence, 15 of them took only 1 bet and 70 of them took at least 1 of the 3 bets. This means that (85 – 70) = 15 of them did not take any bet.

42. 3

43. 3

44. 2; 1 toffee = 2 chocolates. Hence 5 toffee will be equivalent to 10 chocolates. So 20 chocolates cost Rs.40, or one chocolate will cost Rs.2. This was easiest question in the last 10 years of CAT papers. (2005- 2014)

45. 1
$a_0 = 2^0 - 1 = 0$
$a_1 = 2^1 - 1 = 1$
$a_2 = 2^2 - 1 = 3$
$a_3 = 2^3 - 1 = 7$ and so on.
Therefore $a_{10} = 2^{10} - 1 = 1023$.

46. 1 Total are 15 combinations as shown below:

Combination	50 Rubbles	10 Rubbles	1 Rubble	Total
1	0	0	95	95
2	0	1	85	95
3	0	2	75	95
4	0	3	65	95
5	0	4	55	95
6	0	5	45	95
7	0	6	35	95
8	0	7	25	95
9	0	8	15	95
10	0	9	5	95
11	1	0	45	95
12	1	1	35	95
13	1	2	25	95
14	1	3	15	95
15	1	4	5	95

47. 4 Let the four-digit number be denoted by aabb = 11 × (100a + b).
Now since aabb is a perfect square 100a + b should be a multiple of 11.
The only pairs of values of a and b that satisfy the above mentioned condition is a = 7 and b = 4. Now

7744 is a perfect square.

48. 3 Price of Coffee (in rupees per kilo gram) is 100 + 0.10n
Price of Ooty tea (in rupees per kilo gram) is 89 + 0.15n
Price of the Coffee on the 100th day = 100 + 0.1 × 100 = 110 => 89 + 0.15n = 110 => n = 140.
Number of days in the months of January, February, March and April in the year 2007 = 31 + 28 + 31 + 30 = 120. Therefore the price of both the tea and coffee will be equal on 20th May.

49. 3 If P and Q lie on the intersections of the circles minimum angle is zero.
In this case it form a equilateral triangle APQ its 60 degrees. So the maximum possible measure of the angle AQP is 60°. The answer is between 0 and 60.

50. 2 Let $f(x) = mx^2 + bx + c$
At x = 1, f(1) = m + b + c = 3
At x = 0, f(0) = c = 1
The maximum of the function f(x) is attained at
x = -b/2m = 1 = (m − 2) / 2m
=> m = −2 and b = 4
Therefore $f(x) = -2x^2 + 4x + 1$
Therefore f(10) = −159

Answer the questions below on the basis of the following passage.

More selective than most chemical pesticides in that they ordinarily destroy only unwanted species, biocontrol. agents (such as insects, fungi, and viruses) eat, infect, or parasitize targeted plant or animal pests. However, biocontrol agents can negatively affect nontarget species by, for example, competing with them for resources: a biocontrol agent might reduce the benefits conferred by a desirable animal species by consuming a plant on which the animal prefers to lay its eggs.

Another example of indirect negative consequcnces occurred in England when a virus introduced to control rabbits reduced the amount of open ground (because large rabbit populations reduce the ground cover), in turn reducing underground ant nests and triggering the extinction of a blue butterfly that had depended on the nests to shelter its offspring. The paucity of known extinctions or disruptions resulting from indirect interactions may reflect not the infrequency of such mishaps but rather the failure to look for or to detect them: most organisms likely to be adversely affected by indirect interactions are of little or no known commercial value and the events linking a biocontrol agent with an adverse effect are often unclear. Moreover, determining the potential risks of biocontrol agents before they are used is difficult, especially when a nonnative agent is introduced, because, unlike a chemical pesticide, a biocontrol agent may adapt in unpredictable ways. so that it can feed on or otherwise harm new hosts.

1.   The passage is primarily concerned with

A. explaining why until recently scientists failed to recognize the risks presented by biocontrol agents.
B. emphasizing that biocontrol agents and chemical pesticides have more similarties than differences.
C. suggesting that only certain biocontrol agents should be used to control plant or animal pasts.
D. arguing that biocontrol agents involve risks, some of which may not be readily discerned.

2.   The passage suggests that the author would be most likely to agree with which of the following statements about the use of biocontrol agents?

A. Biocontrol agent should be used only in cases where chemical pesticides have proven ineffective or overly dangerous.
B. Extinctions and disruptions resulting from the use of biocontrol agents are likely to have increasingly severe commercial consequences.
C. The use of biocontrol agents does not require regulation as stringent as that required by the use of chemical pesticides.
D. The risks of using native biocontrol agents may be easier to predict than the risks of using nonnative biocontrol agents.

3.   Which of the following is mentioned in the passage as an indirect effect of using a biocontrol agent?

A. Reduction of the commercial value of a desirable animal species
B. An unintended proliferation of a nontarget animal species
C. An unforeseen mutation in a target species
D. Diminution of the positive effects conferred by a nontarget animal species.

4.   The example presented by the author in highlight text most clearly serves to illustrate

A. a situation in which a species is less vulnerable to biocontrol agents than it would have been to chemical pesticides.
B. a way in which the introduction of a biocontrol agent can affect a nontarget species.
C. a nonnative agent's adapting in an unpredictable way that results in damage to a new host.
D. The contention that biocontrol agents can harm nontarget species by competing with them for resources

5. Arrange sentences A, B, C and D between sentences 1 and 6 to form a logical sequence of six sentences.

1. Buddhism is a way to salvation.
A. But Buddhism is more severely analytical.
B. In the Christian tradition there is also a concern for the fate of human society conceived as a whole, rather than merely as a sum or network of individuals.
C. Salvation is a property, or achievement of individuals.
D. Not only does it dissolve society into individuals, the individual in turn is dissolved into component parts and instants, a stream of events.
6. In modern terminology, Buddhist doctrine is reductionist.
a. ABDC   b. CBAD   c. BDAC   d. ABCD

6. Arrange sentences A, B, C and D between sentences 1 and 6 to form a logical sequence of six sentences.

1. The problem of improving Indian agriculture is both a sociological and an administrative one.
A. It also appears that there is a direct relationship between the size of a state and development.
B. The issues of Indian development, and the problem of India's agricultural sector, will remain with us long into the next century.
C. Without improving Indian agriculture, no liberalisation and delicensing will be able to help India.
D. At the end of the day, there has to be a ferment and movement of life and action in the vast segment of rural India.
6. When it starts marching, India will fly.
a. DABC   b. CDBA   c. ACDB   d. ABCD

Hidden Island is an obscure island which is inhabited by two types of people: the 'Yes' type and the 'No' type. Native of type 'Yes' ask only questions the right answer to which is 'Yes' while those of type 'No' ask only questions the right answer to which is 'No'. For example. The 'Yes' type will ask questions like "Is 2 plus 2 equal to 4?" while the 'No' type will ask questions like "Is 2 plus 2 equal to five?" The following questions are based on your visit to the Hidden Island.

7. If an islander asks, "Do I belong to the 'No' type", which of the following is correct?
(a) He is a 'No'.
(b) He is a 'Yes'.
(c) It is impossible for him to have asked such a question.
(d) His type cannot be identified.

8. Aman and Mohan are brothers from the Island. Mohan asks you, "Is at least one of us brothers of type 'No"? You can
conclude that
(a) Aman is 'NO', Mohan is 'Yes '.
(b) both are 'Yes'.
(c) Aman is 'Yes', Mohan is 'No'.
(d) both are 'No'.

9. Arrange sentences A, B, C and D between sentences 1 and 6 to form a logical sequence of six sentences.

1. Good literary magazines have always been good because of their editors.
A. Furthermore, to edit by committee, as it were, would prevent any magazine from finding its own identity.
B. The more quirky and idiosyncratic they have been, the better the magazine is, at least as a general rule.

C. But the number of editors one can have for a magazine should also be determined by the number of contributions to it.

D. To have four editors for an issue that contains only seven contributions, it is a bit silly to start with.

6. However, in spite of this anomaly, the magazine does acquire merit in its attempt to give a comprehensive view of the Indian literary scene as it is today.

a. ABCD   b. BCDA   c. ABDC   d. CBAD

Directions for Questions:

Answer the following questions based on the statements given below:

Following questions are about 6 project reports of different heights from 6 different students and of 6 different colors displayed on a cupboard.

(i) There are three Project Reports on each side of the aisle.

(ii) These six Project Reports are labeled as Piyush, Qadar, Richa, Sandesh, Tanvi and Urvashi.

(iii) The Project Reports are of different colours, namely, Red, Blue, Green, Orange, Yellow and White.

(iv) The Project Reports are of different heights.

(v) Tanvi, the tallest Project Report, is exactly opposite to the Red coloured Project Report.

(vi) The shortest Project Report is exactly opposite to the Green coloured Project Report.

(vii) Urvsahi, the Orange coloured Project Report, is located between Piyush and Sandesh.

(viii) Richa, the Yellow coloured Project Report, is exactly opposite to Piyush.

(ix) Qadar, the Green coloured Project Report, is exactly opposite to Urvashi.

(x) Piyush, the White coloured Project Report, is taller than Richa, but shorter than Sandesh and Qadar.

10. What is the colour of the Project Report diagonally opposite to the Yellow coloured Project Report?

(1) White   (2) Blue   (3) Green   (4) Red   (5) none of these

11. Which is the second tallest Project Report?

(1) Piyush   (2) Sandesh   (3) Qadar   (4) Richa

12. What is the colour of the tallest Project Report?

(1) Red   (2) Blue   (3) Green   (4) none of these

13. What is the color of the report named Richa?

(1) Red   (2) Blue   (3) Green   (4) Yellow

14. In each of the following questions, a part of a sentence is left blank. Choose from among the four options given below each question, the one which would best fill the blanks.

When we call others dogmatic, what we really object to is ___.

a. their giving the dog a bad name

b. their holding beliefs that are different from our own

c. the extremism that goes along with it

d. the subversion of whatever they actually believe in concomitantly

15. Science, because people engage in it, is a socially embedded activity. It progresses by hunch, vision, and intuition. Much of its change through time does not record a closer approach to absolute truth, but the alternation of the cultural contexts that influence it so strongly. Facts are not pure and unsullied bits of information— culture influences what we see and how we see it. Theories, moreover, are not inexorable inductions from facts. The most creative theories are often imaginative visions imposed upon facts; the source of imagination is also strongly cultural.

The author implies that those who rely on scientific results should

a) realize that science relies on imagination to approach absolute truth

b) insist on pure and unsullied facts rather than on theories

c) understand that theories are frequently strict inductions from facts
d) consider the cultural biases of scientists

16.   Baking for winter holidays is tradition that may have a sound medical basis. In midwinter, when days are short, many people suffer from a specific type of seasonal depression caused by lack of sunlight. Carbohydrates, both sugars and starches, boost the brain's levels of serotonin, a neurotransmitter that improve the mood. In this respect, carbohydrates act on the brain in the same way as some antidepressants. Thus, eating holiday cookies may provide an effective form of self-prescribed medication.

Which one of the following can be properly inferred from the passage?
(A) Seasonal depression is one of the most easily treated forms of depression.
(B) Lack of sunlight lowers the level of serotonin in the brain.
(C) People are more likely to be depressed in midwinter than at other times of the year.
(D) Some antidepressants act by changing the brain's level of serotonin.

Answer the questions below on the basis of the following passage.

When views can freely flourish in the marketplace of ideas, individuals are afforded the advantage of deciding what notions and concepts to question, support or reject. On June 8, 1789, James Madison introduced in the House of Representatives an amendment to the Constitution: "The people shall not be deprived or abridged of their right to speak, to write, or to publish their sentiments; and the freedom of the press, as one of the great bulwarks of liberty, shall be inviolable." This commitment to a free press is a principle Americans hold firmly, because they view it as a necessary ingredient for a properly functioning political process and a critical component of a free society. Yet, since the time of America's founding, the politicized nature of the press has not fundamentally changed.

While conservatives and liberals alike claim that today's mainstream media is biased, opinionated, and devoid of objectivity and balanced analysis, American newspapers at the time of this nation's birth were all partisan, believing that their responsibility was not to report news, but to convey, without apology, a particular political position. Perhaps the high point of partisan newspapers was in New York during the 1920's, when the city had over a dozen daily papers, each geared toward a particular ethnic and political niche; people selected the paper that made the most sense of the world to them. Despite the naysayers who warn that the lack of objectivity and fair-mindedness is corrosive to society, partisan journalism can be good journalism. It produces plenty of excellent reporting and analysis and is the norm in many nations. Two centuries ago, newspapers subsidized by Andrew Jackson's Democrats and Henry Clay's Whigs were dependable supporters of their parties. Today's newspapers claim that they too are only giving their readership what it wants.

Legally, the Supreme Court has tried since 1919 to clarify how free the press is. Over time, older laws that allowed publications to be punished for libel, obscenity, sedition, and publishing inflammatory material have given way to more expansive rights to publish. The First Amendment protections offered to journalists have evolved to a broader interpretation of freedom of the press. During the 1960's and 1970's, journalists exposed the government's mismanagement of the Vietnam War, and their investigative reporting eventually brought about the resignation of President Nixon. By the end of the twentieth century, the Constitution's protections were broadly held to cover the content of all papers, from the highly regarded New York Times to tabloids such as The National Enquirer.

17. According to the author, which of the following is true about partisan journalism throughout American history?

a) It has had a limited impact on the political process.
b) Its lack of objectivity is detrimental.
c) It has played an important role in reliably informing individuals from diverse cultural backgrounds.
d) It has essentially been the status quo since America's founding.

18. Which of the following statements about American newspapers is supported by information contained in the passage?

a) America's newspapers in 1789 resembled those of today in form and content.
b) The character of the press has matured since the time of America's founding.
c) In recent years, the press has become biased in regard to its political reporting.
d) Early American journalists did not necessarily provide a balanced analysis of events.

19. The author of the passage would disagree with which of the following statements?

a) The legal understanding of press freedoms has shifted over time.
b) Over time, the First Amendment protections offered to the press have become absolute.
c) America's legal evolution has given way to a more liberal understanding of press freedom.
d) First Amendment press rights today protect a broad section of the newspaper industry.

20. All of the following are examples of limitations the courts have placed on freedom of the press, EXCEPT

a) articles deemed maliciously defamatory of individuals
b) articles viewed as offensive to society's views of decency
c) articles that comment negatively on a political affiliation
d) articles clearly dangerous to national security

21. Street crime can be averted through regulations mandating the lighting of streetlights during daytime. As daytime visibility is worse in nations farther from the equator, so obviously such regulations would be more successful in averting crime there. Actually, the only nations that have adopted such regulations are farther from the equator than the continental United States.
Which of the following conclusions could be most properly drawn from the information given above?

A. Bystanders in the continental United States who were near lit streetlights during the day would be just as likely to become victims of a crime as would bystanders who were not near lit streetlights.
B. Inadequate daytime visibility is the single most important factor in street crime in numerous nations that are located farther from the equator than is the continental United States.
C. In nations that have daytime streetlight regulations, the percentage of street crime that happens in the daytime is greater than in the continental United States.
D. Daytime streetlight regulations would probably do less to avert street crime in the continental United States than they do in the nations that have the regulations.

22. During the construction of the Quebec Bridge in 1907, the bridge's designer, Theodore Cooper, received word that the suspended span being built out from the bridge's cantilever was deflecting downward by a fraction of an inch (2.54 centimeters). Before he could telegraph to freeze the project, the whole cantilever arm broke off and plunged, along with seven dozen workers, into the St. Lawrence River. It was the worst bridge construction disaster in history. As a direct result of the inquiry that followed, the engineering "rules of thumb" by which thousands of bridges had been built around the world went down with the Quebec Bridge. Twentieth-century bridge engineers would thereafter depend on far more rigorous applications of mathematical analysis.

Which one of the following statements can be properly inferred from the passage?

A. Prior to 1907 the mathematical analysis incorporated in engineering rules of thumb was insufficient to completely assure the safety of bridges under construction.
B. Cooper's absence from the Quebec Bridge construction site resulted in the breaking off of the cantilever.
C. Nineteenth-century bridge engineers relied on their rules of thumb because analytical methods were inadequate to solve their design problems.
D. Only a more rigorous application of mathematical analysis to the design of the Quebec Bridge could have prevented its collapse.

23. Choose the option that best captures the essence of the passage.
There are many and good reasons why women have left little in the way of literary monuments, especially poetry. The main reason is education, or more specifically the lack of it in most women's lives until well into the twentieth century. In the light of this, what is surprising is not that so few women wrote poetry, but that any women wrote poetry at all. When a woman who had never been to grammar school, never learnt Latin and did not know the rules of syntax, let alone of prosody, set herself to writing lines that rhymed, she was imitating an art that, admire it though she might, she did not understand — a male art, a male tradition. This meant she generally produced poetry that was at best imperfect, at worst, frankly bad.

a) The reason why women haven't created literary monuments is because until recently they were not educated. In this case, the only option for an uneducated woman was to plagiarize in order to show herself as superior.
b) The lack of education is the biggest reason for women's lack of achievements in the literary sphere. In the absence of the knowledge of basics, she would see the male creations as 'ideal' and try to copy them.

c) The lack of education is the biggest reason for women's lack of achievements in the literary sphere. Feeling inferior to educated men, they would imitate them in every area including literature.
d) The lack of education is the biggest reason for women's lack of achievements in the literary sphere. It suited men well since in such a scenario the women had no choice but to imitate the men.

Recently, Rajesh visited the local casino where he came across a new card game. Two players, using a normal deck of 52 playing cards, play this game. One player is called the 'dealer' and the other is called the 'player'. First, the player picks a card at random from the deck. This is called the base card. The amount in rupees equal to the face value of the base card is called the base amount. The face values of ace, king, queen and jack are ten. For other cards the face value is the number on the card. Once the 'player' picks a card from the deck, the 'dealer' pays him the base amount. Then the 'dealer' picks a card from the deck and this card is called the top card. If the top card is of the same suit as the base card, the 'player' pays twice the base amount to the 'dealer'. If the top card is of the same colour as the base card (but not the same suit), then the 'player' pays the base amount to the 'dealer'. If the top card happens to be of a different colour than the base card, the 'dealer' pays the base amount to the 'player'.

Rajesh played the game four times. First time he picked eight of clubs and the 'dealer' picked queen of clubs. Second time, he picked ten of hearts and the 'dealer' picked two of spades. Next time, Rajesh picked six of diamonds and the 'dealer' picked ace of hearts. Lastly, he picked eight of spades and the 'dealer' picked jack of spades. Answer the following questions based on these four games.

24. If Rajesh stopped playing the game when his gain would be maximized, the gain in Rs. Would have been
a. 12   b. 20   c. 16   d. 4

25. The initial money Rajesh had (before the beginning of the game sessions) was Rs. X. At no point did he have to borrow any money. What is the minimum possible value of X?
a. 16   b. 8   c. 100   d. 24

26. If the final amount of money that Rajesh had with him was Rs. 100, what was the initial amount he had with him?
a. 120   b. 8   c. 4   d. 96

27. If Rajesh stopped playing the game when his loss would be maximumm, the loss in Rs. Would have been
a. -12   b. -20   c. -8   d. -4

Answer the questions below on the basis of the following passage.

The communities of ants are sometimes very large, numbering even up to 500, individuals: and it is a lesson to us that no one has ever yet seen quarrel between any two ants belonging to the same community. On the other hand, it must be admitted that they are in hostility not only with most other insects, including ants of different species, but even with those of the same species if belonging to different communities. I have over and over again introduced ants from one of my nests into another nest of the same species; and they were invariably attacked, seized by a leg or an antenna, and dragged out.

It is evident, therefore, that the ants of each community all recognize one another, which is very remarkable. But more than this, I several times divided a nest into two halves and found that even after separation of a year and nine months they recognize one another and were perfectly friendly, while they at once attacked ants from a different nest, although of the same species.

It has been suggested that the ant of each nest have some sign or password by which they recognize one another. To test this I made some of them insensible, first I tried chloroform; but this was fatal to them, and I did not consider the test satisfactory. I decided therefore to intoxicate them. This was less easy than I had expected. None of my ants would voluntarily degrade themselves by getting drunk. However, I got over the difficulty by putting them into whisky for a few moments. I took fifty specimens - - twenty five percent from one nest and twenty five percent from another made them dead drunk, market each with a spot of paint, and put them on a table close to where other ants from one the nests were feeding.

The table was surrounded as usual with a moat of water to prevent them from straying. The ants, which were feeding, soon noticed those, which I had made drunk. They seemed quite astonished to find their comrades in such a disgraceful condition, and as much at a loss to know what to do with their drunkards as we were. After a while, however, they carried them all away; the strangers they took to the edge of the moat and dropped into the water, while they bore their friends home into the nest, where by degrees they slept off the effects of the spirits. Thus it is evident that they know their friends even when incapable of giving any sign or password.

28. Attitudes of ants towards strangers of the same species may be categorized as
(a) indifferent
(b) curious
(c) hostile
(d) passive

29. The author's anecdotes of the inebriated ants would support all the following inductions except the statement that
(I) ants take unwillingly to intoxicants
(II) ants aid comrades in distress
(III) ants have invariable recognition of their community members
(IV) ants recognize their comrades by a mysterious password.
(a) I and II   (b) I and III   (c) Only III and IV   (d) only IV.

30. According to the passage, chloroform was less successful than alcohol for inhibiting communication because of
(I) its expense
(II) its unpredictable side effects
(III) its unavailability
(IV) its fatality
(a) I and II   (b) I and III   (c) Only III and IV   (d) only IV.

31. All of the following sentences A, B, C and D are taken from a same passage and jumbled up. but one of them is incoherent. Find the incoherent statement.

A. Reliance Industries (RIL), India's largest company, saw its earnings before interest and taxes jump 15 per cent from the first quarter to the second, though net profits grew at a far more modest 2.6 per cent.
B. Part of the reason for this was a sharp, 8 per cent-plus fall in its refining margins, down from $8.40 per barrel in Q1 to $7.70 per barrel in Q2.
C. For RIL, refining and selling oil and making petrochemicals are not new. Investors understand these businesses and value them realistically.
D. This fall happened because the Asian demand — and, therefore, pricing — of lighter fuels like diesel and petrol was under pressure, possibly because most major emerging economies are growing slower than they were before.

Incoherent statement is:
A.   B.   C.   D.

32. All of the following sentences A, B, C and D are taken from a same passage and jumbled up. but one of them is incoherent. Find the incoherent statement.

Sachin did not ask for this honour.
A. There are consolation prizes which console, and some which char the soul.
B. I am not suggesting we write a condolence letter, but sympathy is certainly due to Sachin.
C. Membership of Parliament is a handsome freebie for Sachin Tendulkar
D. Nomination to the Rajya Sabha is a pretty desultory substitute for someone who has been promised the Bharat Ratna.
Delhi's politicians, ever eager to climb a bandwagon, led the clamour for Sachin's elevation to jewel of India after he got his 99th international hundred.

Incoherent statement is:
A.   B.   C.   D.

33. Education Secretary: Too many adults lack sufficient skills for job advancement because of the cost of higher education. Businesses should partner with educators to create curricula that are tailored to the needs of these people, thus increasing the likelihood that the cost of enrollment will be a safe investment.
Union Leader: What good is altering the curricula if students simply do not have the funds to enroll or the time to attend? What we need are more generous educational grants targeted to working adults, and more flexible work hours for working students.
Both the education secretary and the union leader make the point that … ?

A the cost of higher education for many adults is prohibitively high
B many adult students do not have the time to attend courses in higher education
C the cost of higher education is unfairly high
D many adult students will not attend classes in higher education unless they are convinced that doing so will be a good investment.

34. In a political system with only two major parties, the entrance of a third-party candidate into an election race damages the chances of only one of the two major candidates. The third-party candidate always attracts some of the voters who might otherwise have voted for one of the two major candidates, but not voters who support the other candidate. Since a third-party candidacy affects the two major candidates unequally, for reasons neither of them has any control over, the practice is unfair and should not be allowed.
If the factual information in the passage above is true, which of the following can be most reliably inferred from it?

(A) If the political platform of the third party is a compromise position between that of the two major parties, the third party will draw its voters equally from the two major parties.
(B) If, before the emergence of a third party, voters were divided equally between the two major parties, neither of the major parties is likely to capture much more than one-half of the vote.
(C) A third-party candidate will not capture the votes of new voters who have never voted for candidates of either of the two major parties.
(D) The political stance of a third party will be more radical than that of either of the two major parties.

35. It is the powerful compound capsaicin that makes a chili pepper hot; a single drop that has no taste and odor is capable of detection by humans at one part per million.

(A)   a single drop that has no taste and odor is capable of detection
(B)   a single drop is detectable, though without taste and odor,
(C)   a single tasteless and odorless drop can be detected
(D)   single tasteless and odorless drops are capable of detection

36. Old, longstanding firms concentrate on protecting what they have already amassed. Consequently, they rarely innovate and often underestimate what consequences innovation by other companies will have. The best example of one such defensive strategy is the fact that ___.

Which of the following best completes the passage?
A.   electronics and mass-produced gears eliminated the traditional market for pocket watches, clearing the way for marketing them as elegant, old-fashioned luxury items.
B.   an extremely popular prefabricated house was introduced by a company that, several years before, had failed miserably with its product line of glass houses.
C.   a once-leading maker of buggy whips responds to the new availability of stick shifts by attempting to make better buggy whips.
D.   smoking pipes, originally designed for use by typically older, more traditional smokers of tobacco, are now bought mostly by young smokers of scented or flavored herbal blends.

37.   Arrange the sentences A, B, C and D in a proper sequence so as to make a coherent paragraph.

A. After several routine elections there comes a 'critical' election which redefines the basic pattern of political loyalties, redraws political geography and opens up political space.
B. In psephological jargon, they call it realignment.
C. Rather, since 1989, there have been a series of semi-critical elections.
D. On a strict definition, none of the recent Indian elections qualifies as a critical election.
a. ABCD   b. ABDC   c. DBAC   d. DCBA

38.   Arrange the sentences A, B, C and D in a proper sequence so as to make a coherent paragraph.

A. Trivial pursuits marketed by the Congress, is a game imported from Italy.
B. The idea is to create an imaginary saviour in times of crisis so that the party doesn't fall flat on its collective face.
C. Closest contenders are Mani Shankar Aiyar, who still hears His Master's Voice and V. George, who is frustrated by the fact that his political future remains Sonia and yet so far.
D. The current champion is Arjun for whom all roads lead to Rome, or in this case, 10 Janpath.
a. ABDC   b. ABCD   c. DCBA   d. CDBA

Directions for questions: Answer the questions based on the following information.
A and B are two sets (e.g. A = Mothers, B = Women).
C = A . B =>The elements that could belong to both the sets (e.g. women who are mothers) is given by the set C = A . B.
D = A ∪ B =>The elements which could belong to either A or B, or both, is indicated by the set D = A ∪ B.
φ => A set that does not contain any elements is known as a null set represented by φ (e.g. if none of the women in the set B is a mother, then C = A .B is a null set, or C = φ).

Let 'V' signify the set of all vertebrates,
'M' the set of all mammals,
'D' dogs,
'F' fish
'A' alsatian and
'P', a dog named Pluto.

39.   Given that X = M.D is such that X = D. Which of the following is true?
a. All dogs are mammals
b. Some dogs are mammals
c. X = φ
d. All mammals are dogs

40.   If Y = F . (D . V) is not a null set, it implies that
a. all fish are vertebrates

b. all dogs are vertebrates
c. some fish are dogs
d. None of these

41. If Z = (P . D) ∪M, then
a. the elements of Z consist of Pluto, the dog, or any other mammal
b. Z implies any dog or mammal
c. Z implies Pluto or any dog that is a mammal
d. Z is a null set

42. If P . A = φ and P ∪ A = D, then which of the following is true?
a. Pluto and alsatians are dogs
b. Pluto is an alsatian
c. Pluto is not an alsatian
d. D is a null set

Read each of the following passages carefully and answer the questions that follow.

Atmospheric jet streams were discovered towards the end of World War II by U.S. bomber pilots over Japan and by German reconnaissance aircraft over the Mediterranean. The World Meteorological Organization defines a jet stream as a strong, narrow air current that is concentrated along nearly horizontal axis in the upper troposphere or stratosphere (10 to 50km altitude), characterized by wind motions that produce strong vertical lateral shearing action and featuring one of more velocity maximum. Normally a jet stream is thousands of kilometers long, hundreds of kilometers wide and several kilometers deep. The vertical wind shear is of the order of 5 to 10 m/sec per kilometer, and the lateral shear is of the order of 5 m/sec per 100 km. An arbitrary lower limit of 30m/sec is assigned to the speed of the wind along the axis of a jet stream.

With abundant radio-sonic data now available over the Northern Hemisphere it is possible to map the jet streams in the upper troposphere (near 10 to 12 km) in their daily occurrence and variation and to forecast them reasonably well with numerical prediction techniques. Upper-air information from the Southern Hemisphere is still sparse. Constant-level balloons (the so-called GHOST balloons) and satellite information on temperature structure and characteristic cloud formations in the atmosphere are serving to close the data on the global jet stream distribution.

The strongest winds known in jet streams have been encountered over Japan, where speeds up to 500 km/hr (close to 300 knots) occur. A persistent band of strong winds occurs during the winter season over this region, flowing from the southwest and leading tropical air northern India into juxtaposition with polar and arctic air from Siberia. A similar region of confluence of air masses with vastly different temperatures exists over the central and eastern United States, leading to a maximum frequency of occurrence of jet streams during winter and spring.

43. An atmospheric jet stream is
(a) a rare phenomenon.
(b) three dimensional.
(c) concentrated in the northern hemisphere.
(d) more common in summer.

44. Detailed studies of atmospheric streams have been made over
(a) South Africa
(b) Europe
(c) Australia
(d) Antarctica

45. The atmospheric jet stream consists of

(a) cumulous clouds bearing saturated moisture.
(b) debris caused by meteorites.
(c) air currents.
(d) effluents from speeding aircraft.

46. Some decisions will be fairly obvious — 'no-brainers'. Your bank account is low, but you have a two week vacation coming up and you want to get away to some place warm to relax with your family. Will you accept your in-laws' offer of free use of their Florida beachfront condo? Sure. You like your employer and feel ready to move forward in your career. Will you step in for your boss for three weeks while she attends a professional development course? Of course.

Choose the option that best captures the essence of the text.
A. Some decisions are obvious under certain circumstances. You may, for example, readily accept a relative's offer of free holiday accommodation. Or step in for your boss when she is away.
B. Some decisions are no-brainers. You need not think when making them. Examples are condo offers from in-law and job offers from bosses when your bank account is low or boss is away.
C. Easy decisions are called 'no-brainers' because they do not require any cerebral activity. Examples such as accepting free holiday accommodation abound in our lives.
D. Accepting an offer from in-laws when you are short on funds and want a holiday is a no-brainer. Another no-brainer is taking the boss's job when she is away.

Direction for questions: Answer the questions based on the following information.
A series S_1 of five positive integers is such that the third term is half the first term and the fifth term is 20 more than the first term. In series S_2, the nth term defined as the difference between the (n+1) term and the nth term of series S_1, is an arithmetic progression with a common difference of 30.

47. First term of S_1 is
a. 80　　　　　　b. 90　　　　　　c. 100　　　　　　d. 120

48. What is the difference between second and fourth terms of S_1?
a. 10　　　　　　b. 20　　　　　　c. 30　　　　　　d. 60

49. What is the average value of the terms of series S_1?
a. 60　　　　　　b. 70　　　　　　c. 80　　　　　　d. Average is not an integer

50. What is the sum of series S_2?
a. 10　　　　　　b. 20　　　　　　c. 30　　　　　　d. 40

Solutions

1.   The passage is primarily concerned with
A. explaining why until recently scientists failed to recognize the risks presented by biocontrol agents.
Nope.Nothing like that has been mentioned.
B. emphasizing that biocontrol agents and chemical pesticides have more similarties than differences.
>>Nope.Nothing like that has been mentioned.
C. suggesting that only certain biocontrol agents should be used to control plant or animal pasts.
>>Nope,no preferance regarding any particular agent has been mentioned.
D. arguing that biocontrol agents involve risks, some of which may not be readily discerned.
"The paucity of known extinctions or disruptions resulting from indirect interactions may reflect not the infrequency of such mishaps but rather the failure to look for or to detect them: most organisms likely to be adversely affected by indirect interactions are of little or no known commercial value and the events linking a biocontrol agent with an adverse effect are often unclear"

2.   The passage suggests that the author would be most likely to agree with which of the following statements about the use of biocontrol agents?
D. The risks of using native biocontrol agents may be easier to predict than the risks of using nonnative biocontrol agents.
"determining the potential risks of biocontrol agents before they are used is difficult, especially when a nonnative agent is introduced, because, unlike a chemical pesticide, a biocontrol agent may adapt in unpredictable ways. so that it can feed on or otherwise harm new hosts."

3.   Which of the following is mentioned in the passage as an indirect effect of using a biocontrol agent?
D. Diminution of the positive effects conferred by a nontarget animal species.
"competing with them for resources: a biocontrol agent might reduce the benefits conferred by a desirable animal species by consuming a plant on which the animal prefers to lay its eggs."

4.   The example presented by the author in highlight text most clearly serves to illustrate
B. a way in which the introduction of a biocontrol agent can affect a nontarget species.
"...in turn reducing underground ant nests and triggering the extinction of a blue butterfly that had depended on the nests to shelter its offspring."

5.   b After 1, (C) states a fact about salvation. (B) states the Christian belief in that regard. (A) opposes it to Buddhism, by using 'but'. (D) elaborates the fact.

6.   d After the factors stated in 1, (A) states the relationship between size of a state and development. (B) states that the problems of agricultural sector will remain with us in the next century. (C) emphasizes the need to improve agriculture. (D) states that rural India has to start moving, an idea that is continued in (6).

7.   (c) There are two cases in the given question:
Case 1: If the answer is correct, then is the person belongs to the 'No' type of people. In this case, the person has contradicted himself by saying the truth, and 'no' type cannot say the truth.
Case 2: If the answer is incorrect, then the person belong to the 'No' type of people. This makes his answer correct and converts him into a 'yes' type.
Thus in both cases we arrive at a contradiction.

8.   (a) Let's take make cases again.
Case 1: none of them are 'yes', that is both are 'yes'.
In this case his statement his false, and at least one will have to be 'no'. Since Laxman lied, he has to be 'no'.
Case 2: both of them are yes.
In this case what he said is false, and Laxman becomes a no. But this is a contradiction with our assumed result. So this is logically invalid.
In both the cases, the case is negated. Hence, options 2 and 4 can be ruled out. Now let's take option 4. We assume Laxman lied and is a 'no', and Ram is 'yes'. This is again invalid, as in this case, Laxman has said the truth (as one of them is a 'no'). Thus, option (d) is also not possible.

9.   b (B) shows the relationship between a magazine and its editor, 'editors' are referred to as 'they'. (C) states that the number of editors should be determined by the contributions it gets. (D) continues with this fact. (A) follows by using 'furthermore'.

Solution

T = tallest & opposite to Red; Shortest opposite to Green; U = orange & the position of U is: P/S U S/P; R = yellow & opposite to P ; Q = Green & opposite to U ; P = White & (S, Q) > P > R (in height) We can deduct, T > (S, Q) > P > R > U in terms of height and form following two cases.

Height	5	2/3	1		1	2/3	5
Report Name	Richa	Qadar	Tanvi		Tanvi	Qadar	Richa
Color	yellow	green	blue	OR	blue	green	yellow
Color	white	Orange	Red		red	Orange	white
Report Name	Piyush	Urvashi	Sandesh		Sandesh	Urvashi	Piyush
Height	4	6	3/2		3/2	6	4

10.   4 Diagonally opposite to yellow is red.
11.   5 Second tallest Project Report is either Q or S. So, we cannot determine.
12.   2 Tallest Project Report is T whose colour is Blue.
13.   4. Richa is yellow colored report

14.   When we call others dogmatic, what we really object to is ___ their holding beliefs that are different from our own. This is the only phrase that fits here.

15.   Correct answer is D
a) realize that science relies on imagination to approach absolute truth: No it does not rely on imagination because imagination itself is influenced by cultural contexts
b) insist on pure and unsullied facts rather than on theories: Nowhere is this mentioned that scientists should insist on facts
c) understand that theories are frequently strict inductions from facts: The opposite is mentioned here "Theories, moreover, are not inexorable inductions from facts"
d) consider the cultural biases of scientists: Correct, this seems to capture what is central to the argument that scientific results are influenced by cultural contexts.

16.   Structure of argument:
lack of Sunlight ----> causes --> Seasonal depression.
C.H --> inc level of sero -> mood.
C.H acts as anti depression.
From this Clearly the answer is D.
(A) Seasonal depression is one of the most easily treated forms of depression.
No. There is no comparison made with other forms of depression.
(B) Lack of sunlight lowers the level of serotonin in the brain.
No. Not mentioned.
(C) People are more likely to be depressed in midwinter than at other times of the year.
No. Nothing about other seasons mentioned.
(D) Some antidepressants act by changing the brain's level of serotonin.

17.   Solution: This Specific question asks what is true about partisan journalism throughout American history. What is stated is that since its beginning, the press has not significantly changed. The passage additionally says that like newspapers today, newspapers at the time of America's birth were all partisan, thereby making (D) the correct response. (A) is incorrect because the passage states that the commitment to a free press is a necessary ingredient for the political process to function properly. (B) is incorrect because the first paragraph does state that partisan journalism can be good journalism. (C) is incorrect because while partisan journalism has played an important role in informing individuals, we have no way of knowing whether it has done so reliably.

18. Solution: The opening paragraph states, "American newspapers at the time of this nation's birth were all partisan, believing that their responsibility was not to report news, but to convey, without apology, a particular political position." Therefore, one can conclude that early American journalists did not always present a balanced perspective, making (D) the correct response. (A) is incorrect because the passage does not compare the form of past newspapers with that of today's papers. (B) is incorrect because it is in sharp contrast to what the fourth sentence of the first paragraph states. "Yet, since the time of America's founding, the politicized nature of the press has not fundamentally changed." (C) is incorrect because the press has always been politically biased; it is not a recent phenomenon.

19. Solution: In this question, four of the answer choices will contain statements that the author will agree with. The author would agree with answer choices (A) and (C) because of the statements in the following sentence: "Over time, older laws that allowed publications to be punished for libel, obscenity, sedition, and publishing inflammatory material have given way to more expansive rights to publish." The author would agree with (D). "During the 1960's and 1970's, journalists exposed the government's mismanagement of the Vietnam War and their investigative reporting eventually brought about the resignation of President Nixon." The author would not agree with answer choice (B). The passage states that courts have continuously reinterpreted what is meant by freedom of the press. Therefore, the author would not agree that First Amendment protections are absolute, making (B) the correct response.

20. This is a Specific question in which four of the answers will be found within the passage. The one that cannot be found from information in the passage is the answer to this EXCEPT question. (A), (B), (D) are contained in the passage. They are all paraphrases of the second sentence of the third paragraph, which says, "Over time, older laws that allowed publications to be punished for libel, obscenity, sedition, and publishing inflammatory material have given way to more expansive rights to publish." The passage does say that the mainstream press has always been politically biased, making (C) the EXCEPTION and the correct answer.

21. Actually, the only nations that have adopted such regulations are farther from the equator than the continental United States. this wants to convey that on earth united states is near to the equator and all those nations who have adopted this regulation...they are more far from equator than is united states.
two facts given:
less visibility => in farther place from euator.
these places(where regulation is adopted) => such regulation will be more successful.
hence we can conclude D is answer.

22. The argument says before Twentieth-century the engineering team followed "rules of thumb to build bridges. Quebec Bridge in 1907 collasped even after following rules...therefore these rules were not sufficient/safe and engineers started depending on far more rigorous applications of mathematical analysis
Only A summarizes the given argument....
B....we don't know this....passage doesnot mention that coopers absence led to the accident
C..We dont have any information of bridges built before 1907...so OFS
D..OFS....we dont know this....

23. B, Its directly evident from last 2 lines where in the author says that woman is trying to imitate male-art. Hence answer should be B.

Game	Opening	Players Pick		Dealer's Pick		Closing
	Balance	Debit (-)	Credit (+)	Debit (-)	Credit (+)	Balance
1	0	0	8	16	0	-8
2	-8	0	10	0	10	12
3	12	0	6	6	0	12
4	12	0	8	16	0	4

24. A. the maximum gain is Rs. 12

25. B. Since the maximum loss that Rajesh can go to is –8, he should begin with at least Rs. 8, so that he does not have to borrow any money at any point.

26. D. In four games, Rajesh makes a profit of Rs. 4. if the final amount left with Rajesh is Rs. 100, the initial amount that he had would be Rs. 96.

27. C. According to the table maximum loss is -8 Rs.

28. c Ants attack strangers who might belong to the same species.

29. d If they did so they would have been unable to communicate with the drunken ants.

30. d Chloroform killed the ants.

31. Incoherent statement is C. For RIL, refining and selling oil and making petrochemicals are not new. Investors understand these businesses and value them realistically.

Each of the other statement talks about reliance and its financial results.

32. Incoherent Statement is C. Rest of the statements are correlated which C is just stating the fact that Sachin is a member of Rajya Sabha.

33. Here is logic to arrive at the answer A)

A) "the cost of higher education for many adults is prohibitively high"

Both of them agree that the high cost of higher education. Correct.

B) many adult students do not have the time to attend courses in higher education

Only Union Leader, and not the Education Secretary, points to lack of time. Incorrect.

C)the cost of higher education is unfairly high

Although this option looks similar to A), it is incorrect due to the use of the word "unfairly". We don't know whether high cost of higher education is justified or not. Incorrect.

D) many adult students will not attend classes in higher education unless they are convinced that doing so will be a good investment.

This cannot be concluded from the statements. Incorrect.

34. Premise 1: In a political system with only two major parties, the entrance of a third-party candidate into an election race damages the chances of only one of the two major candidates.

Premise 2: The third-party candidate always attracts some of the voters who might otherwise have voted for one of the two major candidates, but not voters who support the other candidate.

Conclusion: Since a third-party candidacy affects the two major candidates unequally, for reasons neither of them has any control over, the practice is unfair and should not be allowed.

A. If the political platform of the third party is a compromise position between that of the two major parties, the third party will draw its voters equally from the two major parties. As per premise 1 only 1 of the parties should get affected not both, so this is incorrect.

B. If, before the emergence of a third party, voters were divided equally between the two major parties, neither of the major parties is likely to capture much more than one-half of the vote. As per premise 1 only 1 of the parties should get affected not both, so this is incorrect.

C. A third-party candidate will not capture the votes of new voters who have never voted for candidates of either of the two major parties. Passage says third candidate affects one of the major parties candidate by drawing his/her voters, so it can be assumed that new voters who never voted might not vote from this third candidate.

D. The political stance of a third party will be more radical than that of either of the two major parties. The passage does not support that third party will have radical views.

35. It is the powerful compound capsaicin that makes a chili pepper hot; <u>a single drop that has no taste and odor is capable of detection</u> by humans at one part per million.

>> After semicolon, the next sentence need to be an IC. All options appears to be ICs :lol:

>> When a word is used in several ways (as Noun, Adj, Verb) preference goes as per VAN rule (Verb>Adj>Noun). So, detected > detectable > detection.

(A) a single drop that has no taste and odor is capable of detection >> wordy+violets VAN rule
(B) a single drop is detectable, though without taste and odor, >> violets VAN rule
(C) a single tasteless and odorless drop can be detected >> favors VAN rule
(D) single [tasteless and odorless drops] are capable of detection >> SVA issue+violets VAN rule+wordy

36. Conclusion – Old firms don't innovate & underestimate other companies that do.
Evidence – Old firms concentrate on protecting what they have.
Assumptions – Protecting what you have = NOT innovating
What's the blank represent? An example that will prove the author's point.
Prediction: An old firm that didn't innovate & suffered as a result of another company that did.
A.   Incorrect. This is contradictory since the traditional pocket watch makers changed their marketing (and thus innovated.)
B.   Incorrect. This is contradictory since it shows a company that innovated.
C.   Correct! Here an old buggy whip firm does not innovate and simply focuses on what they already have.
D.   Incorrect. This focuses on the consumer. We would consider this "out of scope" since our argument focuses on the producers.

37. A. B talks about the previous records of mid-term elections, and its implications on the present situation, A presents a contradictory fact, and C states the implications of this fact. D concludes the passage.

38. B. A introduces critical elections as the subject of the passage, B explains it, D states that none of the Indian elections so far has been a critical election, instead as C states, there have been many semi-critical ones.

39. A. Let ∩ means common M ∩ D means there are some M who are D
(1) X = M.D = M ∩ D - means there are some M who are D
(2) X = D – means all X are Dogs
Combining both (1) and (2) M ∩ D = D
⇒ D ⊂ M; Thus all dogs are mammals.

40. C.
Y = F . (D . V) = F ∩ (D ∩ V) is not a null set - means some F are D and some D are V.
That means some F ∩D. fish are dogs.

41. A.
Z = (P.D)∪M = (P ∩ D) ∪ M means Some P are D and All of them are M.
P ∩ D means pluto the dog.
P ∩D ∪ M means pluto the dog or any other mammal.

42. C.
P.A = ϕ P ∪ A = D
P ∩ A = ϕ means no alsations are pluto or pluto is not an alsation where dogs are composed of alsation or pluto or both.

43. B. A jet stream has length, width as well as depth.
44. b Most data is available over the Northern hemisphere.
45. c A jet stream is defined as 'a strong, narrow air current'.

46. A. Some decisions are obvious under certain circumstances. You may, for example, readily accept a relative's offer of free holiday accommodation. Or step in for your boss when she is away.
A is unambiguous, so right choice for the essence.

B. Some decisions are no-brainers. You need not think when making them. Examples are condo offers from in-law and job offers from bosses when your bank account is low or boss is away.
B is not right because the boss did not offer any job.
C. Easy decisions are called 'no-brainers' because they do not require any cerebral activity. Examples such as accepting free holiday accommodation abound in our lives.
C is wrong because free holiday accommodation does not come that frequently in our lives.
D. Accepting an offer from in-laws when you are short on funds and want a holiday is a no-brainer. Another no-brainer is taking the boss's job when she is away.
D is wrong because you never take the boss's job when she is away.

Answers:
First series: (S_1) = m, n, m/2, p, m + 20
Second series: (S_2) = a1, a2, a3, a4
Now $a_1 = n - m$, $a_2 = m/2 - n$, $a_3 = p - m/2$ and $a_4 = m + 20 - p$
$a_2 - a_1 = 30$ gives $3m - 4n = 60$ ... (i)
$a_4 - a_3 = 30$ gives $3m - 4p = 20$ ... (ii)
and $a_4 - a_2 = 60$ gives $m - 2p + 2n = 80$ ... (iii)
Solving these equations we get the values of m = 100,
n = 60, p = 70
Therefore S_1 = 100, 60, 50, 70, 120
S_2 = −40, −10, 20, 50
47. c
48. a
49. c
50. b